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## Magnetism of $\text{SmB}_2\text{C}_2$

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$\text{RB}_2\text{C}_2$  (R=Rare earth) with a tetragonal  $\text{LaB}_2\text{C}_2$ -type crystal structure (space group  $P4/mbm$ )\*<sup>†</sup> shows various magnetic properties. Especially,  $\text{DyB}_2\text{C}_2$ <sup>‡</sup> and  $\text{HoB}_2\text{C}_2$ <sup>§</sup> undergo an antiferroquadrupolar (AFQ) and an antiferromagnetic (AFM) ordering. The complicated phenomena caused by the coexistence of AFQ and AFM interactions attract our interests. However,  $\text{RB}_2\text{C}_2$  with R=Sm, Eu and Yb have not been investigated in detail because it is very difficult (or impossible) to synthesis their compounds. We succeeded recently in growing a single crystal of  $\text{SmB}_2\text{C}_2$ . The present paper provides the results of magnetization and specific heat measurements on  $\text{SmB}_2\text{C}_2$ . The two phase transitions were observed around 52 K and 35 K. The phase transition at 52 K is anomalously higher than  $T_N=46.5$  K of  $\text{GdB}_2\text{C}_2$ , considering the de Genne rule of  $\text{RB}_2\text{C}_2$  system. the magnetic entropy calculated from specific heat is released about  $R\ln 2$ , which means these transitions involve in a doublet ground state of  $\text{Sm}^{3+}$  Kramers ion.

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\*Onimaru *et al.* J. Phys. Soc. Jpn. 68 (1999) 2287.

†Kaneko *et al.* J. Phys. Soc. Jpn. 69 (2000) 3762.

‡Yamauchi *et al.* J. Phys. Soc. Jpn. 68 (1999) 2057

§Onodera *et al.* J. Phys. Soc. Jpn. 68 (1999) 2526.